

MISSISSIPPI STATE UNIVERSITY

INSTITUTE FOR ENVIRONMENTAL STUDIES

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June 21, 1973

(E73-10597) APPLICATION OF ERTS-A DATA
TO AGRICULTURAL PRACTICES IN THE
MISSISSIPPI DELTA REGION Progress Report
(Mississippi State Univ.) 8 p HC \$3.00

N73-25335

Unclas
CSCL 02D G3/13 00597

ERTS Project Scientist
Goddard Space Flight Center
Code 650
Greenbelt, Maryland 20771

Gentlemen:

This letter constitutes the third Type I progress report as required
by Article II of the NASA contract document NAS5-21881.

- (a) This report concerns ERTS-A proposal NASA control no. SR-097
having the title: Application of ERTS-A Data to Agricultural
Practices in the Mississippi Delta Region.
- (b) The principal investigator is:

Dr. C. W. Bouchillon
Principal Investigator - UN 023
Mississippi State University
Drawer GH
Mississippi State, Mississippi 39762
- (c) At this time there are no problems impeding the progress of
the investigation.
- (d) During this reporting period (ending May 31, 1973) a meeting
was held at ERL - NASA/MTF to determine the type of computer
generated products ERL would deliver to the MSU researchers
and set up a schedule for the deliveries. The schedule noted
on the following page resulted from that meeting.

Also during this report period the format for ground truth
collection has been finalized. The data will be recorded
on special forms (copy enclosed) and then transferred to a
computer card file to be maintained at MSU. The card file
may be printed to make a data listing (sample enclosed) or
it may be used to perform some statistical studies with the
computer.

DELIVERY SCHEDULE

ERTS - Delta:

A Land Use Map with the categories of catfish ponds, water, cotton, rice, soybeans, pasture land, timber, and fallowed land will be furnished. The products to be furnished are:

Land Use Map for 6 county area - paper print, 1:250,000 scale,
25 copies
Transparency strip - 1 copy
Score card talley and description material - 25 copies
Magnetic tape-map tape - 1 copy

Statistics for best estimate trapezoidal approximations for the area covered by the 6 counties as well as each county with respect to each of the eight land uses described above will be provided.

SCHEDULE

The August data, 1973 is anticipated to be the best time for a single ERTS-1 pass evaluation. The above material will be delivered to the MSU research team by January 1, 1974.

In the event that the August data is not usable, then the next preceeding ERTS-1 pass data will be used.

In the event that no 1973 passes generate useful data, the August, 1972 data will be used with information traced through the ASCS spot check records to establish ground truth information.

GROUND TRUTH DATA:

A meeting should be scheduled in May with Baskin, the six county agents, Tupper, Therrell, Griffin, Ingels, Bouchillon, and Boyd.
(At Stoneville).

The establishment of fields and field checks will be made during June coincident with the ERTS pass.

Field site visits and observations will be made coincident or adjacent to the ERTS passes until late September, 1973.

AIRCRAFT DATA:

Analysis of one flight line of data to include the Delta Branch Experiment Station at Stoneville will be made. The same products will be furnished for the area covered as for the ERTS-1 data.

PROGRESS REPORT

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Photographic prints of all ERTS-1 data taken over our test area (having less than 30% cloud cover) are sent to the MSU researchers. These are being used to determine statistics such as frequency of usable data, occurrence of system anomalies, and other factors related to evaluating the usefulness of ERTS data with respect to our study.

At this time all ground truth collection equipment has been received and will be deployed in the proper test sites as soon as is possible.

- (e) No significant results have been obtained during this period.
- (f) No papers or publications have been released during this period.
- (g) No recommendations are offered at this time.
- (h) There are no changes in standing order forms.
- (i) There are no descriptor forms for this period.
- (j) A digital data for this project is obtained through ERL-NASA/MTF. There are no request forms filed specifically for this project.
- (k) There is no other information to report at this time.

Sincerely,



C. W. Bouchillon
Director

CWB/mjr

Enclosures

NASA ERTS-1 GROUND TRUTH
Field Observations
Delta Branch Experiment Station

Card 1

General Information

Field Number ¹
Pass Number ⁴
Date ⁸ / / , 1973

Experiment Station Readings

Wind, Velocity ¹⁵ MPH
Direction ¹⁹
Solar Radiation ²⁴ Langleys/Day

Field Readings

Time ²⁹ : GMT
Temperature ³⁶ °F
Cloud Cover ⁴¹ %
Ground Cover ⁴⁶ %
Plant Height ⁵¹ Inches
Infestation, Weed ⁵⁵ %

Type _____

Disease ⁵⁹ %

Type _____

Insect ⁶³ %

Type _____

Soil, Moisture ⁶⁸ %

Condition _____

Pictures ⁷³ / -
roll / frames

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NASA ERTS-1 GROUND TRUTH
Field Observations
Delta Branch Experiment Station
(Page 2)

Card 2	<div style="display: inline-block; text-align: center; vertical-align: middle;">1 □ □</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">4 □ □ 1</div>	Data Taken By: _____
Card 3	<div style="display: inline-block; text-align: center; vertical-align: middle;">1 □ □</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">4 □ □ 2</div>	Soil Condition: _____
Card 4	<div style="display: inline-block; text-align: center; vertical-align: middle;">1 □ □</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">4 □ □ 3</div>	Crop Physiological Condition: _____
Card 5	<div style="display: inline-block; text-align: center; vertical-align: middle;">1 □ □</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">4 □ □ 4</div>	Crop Visual Condition: _____
Card 6	<div style="display: inline-block; text-align: center; vertical-align: middle;">1 □ □</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">4 □ □ 5</div>	Comments: _____
	<div style="display: inline-block; text-align: center; vertical-align: middle;">Field # ┌ └</div>	<div style="display: inline-block; text-align: center; vertical-align: middle;">Pass # ┌ └</div>	

NASA ERTS-1 GROUND TRUTH
Test Site Identification

I.D.
Card 1

Field Number _____
Size _____ Acres Crop _____

Location
Card 2

County _____
Range _____ Township _____
Location in Section _____

Map
Coordinates
Card 3

_____ N. Latitude
Deg Min Sec
_____ W. Longitude
Deg Min Sec

Owner
Card 4

Name and Address of Owner _____

Tenant
Card 5

Name and Address of Tenant _____

Crop
Information
Card 6

Size _____
Acres
Crop _____ Variety _____
Planting Date _____

Soil
Information
Card 7

Soil Type _____
Series, Texture, Color, Slope, etc.

Planting
Information
Card 8

Row Orientation _____
i.e. North to South
Row Spacing _____ Drill Spacing _____
Inches Inches
Pattern _____
i.e. Solid, Skiprow, 2-1, 2-2

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Field Number 1000

Description

Date of

Planting

Flowering _____

Heading _____

Maturity _____

Harvest _____

Last Spring Freeze _____

First Killing Frost _____

Yield _____

Date _____

Description

Rainfall

Date _____

Amount

Blank lined paper.

Date _____

Type .

Amount

Herbicide

Date _____

Type

Amount

Crop History

Date _____

Type

Amount

Remarks

THE FOLLOWING IS A SAMPLE SECTION OF THE GROUND TRUTH DATA LOG WHICH WILL BE KEPT FOR THE FIELDS SURROUNDING THE DELTA BRANCH EXPERIMENT STATION

FIELD 19 314 ACRES COTTON

* * * GENERAL INFORMATION * * *

WASHINGTON CTY.. R6W. T19N. SECTION 3. SOUTH HALF
 33 31 10 N LAT.. 90 51 40 W LONG.
 RAY F BECKHAM. BOX 2077. GREENWOOD. MS. 39642 (OWNER)
 TERRY LYNN. RT. 3. LELAND. MS. 39642 (TENANT)
 314 ACRES. COTTON. PLANTED 4/27/73
 SANDY LOAM (VICKSBURG). LEVEL
 NORTH/SOUTH 38° ROWS. 12° DRILL SPACING. 2-1 SKIPROW

* * * 18 DAY GROUND TRUTH DATA * * *

I.D.	DATE	WIND		SOL RAD	TIME		CLD CVR	GRD CVR	PLT HGT	INFESTATION			SOIL PICTURES		
		VEL	DIR		GMT	TEMP				WD	DIS	INS	MOS	RL	FRS
19 01	05/23	15	NE	86	16:30	87	90	05	04	10	00	00	60	10/12-16	

19 011 DATA TAKEN BY: BOB BOYD
 19 012 SOIL CONDITION: WET
 19 013 CROP PHYSIOLOGICAL CONDITION: JUST SPROUTING
 19 014 CROP VISUAL CONDITION: APPEARS TO BE FALLOWED GROUND
 19 015 COMMENTS: NONE

FIELD 20 172 ACRES SOYBEANS

* * * GENERAL INFORMATION * * *

WASHINGTON CTY.. R6W. T18N. SECTION 28. NE CORNER
 33 23 20 N LAT.. 90 50 00 W LONG.
 DAN L SMYTH. RT 1 GENEILL. MS.
 172 ACRES. SOYBEANS (BRAGG). PLANTED 5/02/73
 SANDY LOAM (COLLINS). LEVEL
 SOLID

* * * 18 DAY GROUND TRUTH DATA * * *

I.D.	DATE	WIND		SOL RAD	TIME		CLD CVR	GRD CVR	PLT HGT	INFESTATION			SOIL PICTURES		
		VEL	DIR		GMT	TEMP				WD	DIS	INS	MOS	RL	FRS
20 01	05/23	15	NE	86	16:55	87	80	20	10	20	00	05	08	10/17-20	

20 011 DATA TAKEN BY: BOB BOYD
 20 012 SOIL CONDITION: DRY AND HARD
 20 013 CROP PHYSIOLOGICAL CONDITION: JUST SPROUTING
 20 014 CROP VISUAL CONDITION: HEALTHY YOUNG CROP
 20 015 COMMENTS: HEAVY WEEDS IN NORTH END OF FIELD